

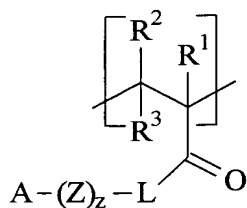
wherein each of R<sup>1</sup>, R<sup>2</sup> and R<sup>3</sup> are independently selected from the group consisting of hydrogen, C<sub>1</sub> to C<sub>6</sub> alkyl, and mixtures thereof; L is selected from the group consisting of a bond, O, NR<sup>6</sup>, SR<sup>7</sup>R<sup>8</sup> and mixtures thereof, wherein R<sup>6</sup> is selected from the group consisting of hydrogen, C<sub>1</sub> to C<sub>8</sub> alkyl and mixtures thereof; each of R<sup>7</sup> and R<sup>8</sup> are independently hydrogen, O, C<sub>1</sub> to C<sub>8</sub> alkyl and mixtures thereof, or SR<sup>7</sup>R<sup>8</sup> form a heterocyclic ring containing from 4 to 7 carbon atoms, optionally containing additional hetero atoms and optionally substituted; Z is selected from the group consisting of: -(CH<sub>2</sub>)-, (CH<sub>2</sub>-CH=CH)-, -(CH<sub>2</sub>-CHOH)-, (CH<sub>2</sub>-CHNR<sup>6</sup>)-, -(CH<sub>2</sub>-CHR<sup>14</sup>-O)- and mixtures thereof; wherein R<sup>14</sup> is selected from the group consisting of hydrogen, C<sub>1</sub> to C<sub>6</sub> alkyl and mixtures thereof; z is an integer selected from 0 to 12; A is NR<sup>4</sup>R<sup>5</sup>, wherein each of R<sup>4</sup> and R<sup>5</sup> are independently selected from the group consisting of hydrogen, C<sub>1</sub> to C<sub>8</sub> alkyl, and mixtures thereof, or NR<sup>4</sup>R<sup>5</sup> form an heterocyclic ring containing from 4 to 7 carbon atoms, optionally containing additional hetero atoms, optionally fused to a benzene ring, and optionally substituted by C<sub>1</sub> to C<sub>8</sub> hydrocarbyl; and wherein said polymeric suds stabilizer has a molecular weight of from 1,000 to 2,000,000 daltons;

- (b) a proteinaceous suds stabilizer, said proteinaceous suds stabilizer having an isoelectric point of from about 7.5 to about 11.5;
- (c) a zwitterionic polymeric suds stabilizer and
- (d) mixtures thereof;

wherein said method further comprises the step of washing the object with said solution; and wherein said suds stabilizer is a, mild, suds enhancing, suds stabilizer such that a user's hands, upon practicing the present method, are not irritated.

2. A method of enhancing mildness of a detergent composition comprising a surfactant system comprising an anionic surfactant or a mixture of anionic surfactants, said method comprising adding a polymeric suds stabilizer to said composition, wherein said polymeric suds stabilizer is selected from the group consisting of:

- (a) polymers comprising at least one monomeric unit of the formula:

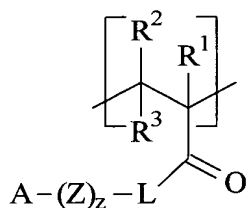


wherein each of  $\text{R}^1$ ,  $\text{R}^2$ ,  $\text{R}^3$ ,  $\text{L}$ ,  $\text{Z}$ ,  $z$  and  $\text{A}$  are as hereinbefore defined; and wherein said polymeric suds stabilizer has a molecular weight of from about 1,000 to about 2,000,000 daltons;

- (b) a proteinaceous suds stabilizer, said proteinaceous suds stabilizer having an isoelectric point of from about 9 to about 11.5;
- (c) a zwitterionic polymeric suds stabilizer; and
- (d) mixtures thereof.

3. A method of cleaning skin by washing the skin with a composition comprising a polymeric suds stabilizer selected from the group consisting of:

- (a) polymers comprising at least one monomeric unit of the formula:

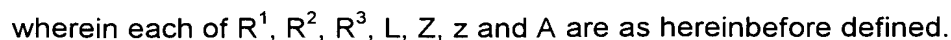


wherein each of  $\text{R}^1$ ,  $\text{R}^2$ ,  $\text{R}^3$ ,  $\text{L}$ ,  $\text{Z}$ ,  $z$  and  $\text{A}$  are as hereinbefore defined; and wherein said polymeric suds stabilizer has a molecular weight of from about 1,000 to about 2,000,000 daltons;

- (b) a proteinaceous suds stabilizer, said proteinaceous suds stabilizer having an isoelectric point of from about 7.5 to about 11.5;
- (c) a zwitterionic polymeric suds stabilizer; and
- (d) mixtures thereof.

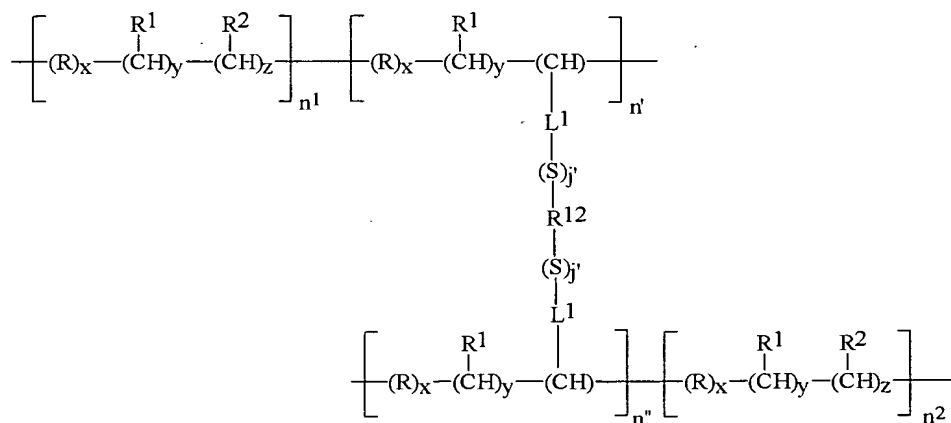
4. The method according to Claim 1 wherein said polymeric suds stabilizer comprises a molecular weight of from about 5,000 to about 1,000,000.

5. The method according to Claim 1 wherein said polymeric suds stabilizer comprises polymers having at least one monomeric unit of the formula:

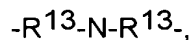


- $$\left[ \text{---}(\text{R})_x\text{---}(\overset{\text{R}^1}{\underset{|}{\text{CH}}})_y\text{---}(\overset{\text{R}^2}{\underset{|}{\text{CH}}})_z\text{---} \right]_n$$

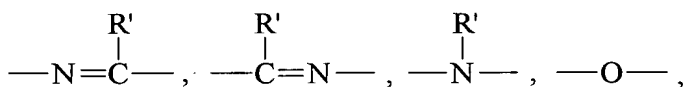
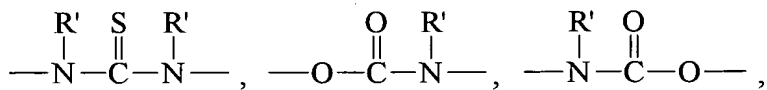
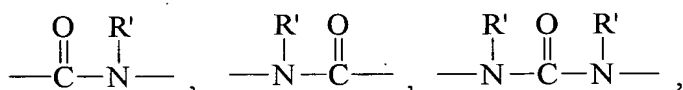
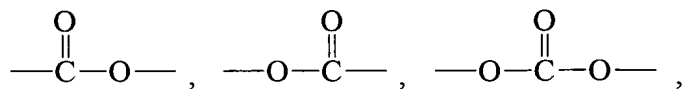
7. The method according to Claim 1 wherein said zwitterionic polymeric suds stabilizer has the formula:



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$L^1$ , and mixtures thereof, wherein each  $R^{13}$  is independently  $L^1$ , ethylene, and mixtures thereof; each  $S$  is independently selected from  $C_1$ - $C_{12}$  linear alkylene,  $C_1$ - $C_{12}$  branched alkylene,  $C_3$ - $C_{12}$  linear alkenylene,  $C_3$ - $C_{12}$  branched alkenylene,  $C_3$ - $C_{12}$  hydroxyalkylene,  $C_4$ - $C_{12}$  dihydroxyalkylene,  $C_6$ - $C_{10}$  arylene,  $C_8$ - $C_{12}$  dialkylarylene,  $-(R^5O)_kR^5-$ ,  $-(R^5O)_kR^6(OR^5)_k-$ ,  $-\text{CH}_2\text{CH}(OR^7)\text{CH}_2-$ , and mixtures thereof;  $L^1$  is a linking unit independently selected from the following:



and mixtures thereof;  $n^1 + n^2$  has a value such that said zwitterionic polymers suds stabilizer has an average molecular weight of from about 1,000 to about 2,000,000 daltons;  $n'$  is equal to  $n''$  and further  $n' + n''$  is less than or equal to 5% or the value  $n^1 + n^2$ ;  $x$  is 0 to 6;  $y$  is 0 or 1; and  $z$  is 0 or 1.

8. A method for manually cleaning an object comprising the steps of contacting a practitioner's hands with a washing solution comprising water and a detergent composition in which suds produced by the solution are maintained by a suds stabilizer, said suds stabilizer comprising:

- i) units capable of having a cationic charge at a pH of from about 4 to about 12;

provided that said suds stabilizer has an average cationic charge density of at least 0.01 units per 100 daltons molecular weight at a pH of from 4 to 12; and

wherein said method further comprises the step of washing the object with said solution; and said practitioner's hands, upon practicing said method, are not irritated.

9. A method of enhancing mildness of a detergent composition comprising a surfactant system comprising an anionic surfactant or a mixture of anionic surfactants, said method comprising the steps of adding a polymeric suds stabilizer to said composition, wherein said polymeric suds stabilizer comprises:

i) units capable of having a cationic charge at a pH of from about 4 to about 12;

wherein said suds stabilizer has an average cationic charge density of at least 0.01 units per 100 daltons molecular weight at a pH of from 4 to 12.

10. A method of cleaning skin while avoiding harsh effects on said skin comprising the step of washing the skin with a composition comprising an effective amount of a polymeric suds stabilizer, said polymeric suds stabilizer comprising:

i) units capable of having a cationic charge at a pH of from about 4 to about 12;

wherein said suds stabilizer has an average cationic charge density of at least 0.01 units per 100 daltons molecular weight at a pH of from 4 to 12,

11. The method according to Claim 8 wherein said polymeric suds stabilizer further comprises:

i) units capable of having an anionic charge at a pH of from about 4 to about 12;

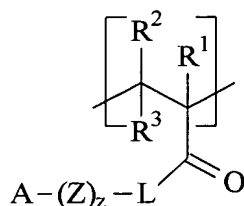
ii) units capable of having an anionic charge and a cationic charge at a pH of from about 4 to about 12;

iii) units having no charge at a pH of from about 4 to about 12; and

iv) mixtures of units (i), (ii), (iii), and (iv).

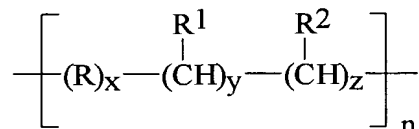
12. The method according to Claim 8 wherein said polymeric suds stabilizer has an average molecular weight of from about 1,000 to about 2,000,000 daltons.

13. The method according to Claim 8, wherein said polymeric suds stabilizer is a polymer comprising at least one monomeric unit of the formula:



wherein each of R<sup>1</sup>, R<sup>2</sup>, R<sup>3</sup>, L, Z, z and A are as hereinbefore defined; and wherein said polymeric suds stabilizer has a molecular weight of from about 1,000 to about 2,000,000 daltons.

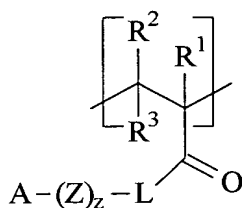
14. The method according to Claim 8, wherein said polymeric suds stabilizer is a zwitterionic polymeric suds stabilizer having the formula:



wherein R is C<sub>1</sub>-C<sub>12</sub> linear alkylene, C<sub>1</sub>-C<sub>12</sub> branched alkylene, and mixtures thereof; R<sup>1</sup> is a unit capable of having a negative charge at a pH of from 4 to 12; R<sup>2</sup> is a unit capable of having a positive charge at a pH of from 4 to 12; n has a value such that said zwitterionic polymers suds stabilizer has an average molecular weight of from 1,000 to 2,000,000 daltons; x is from 0 to 6; y is 0 or 1; and z is 0 or 1.

15. The method according to Claim 1 wherein said polymeric suds stabilizer is selected from the group consisting of a homopolymer, a copolymer, a terpolymer and mixtures thereof.
16. The method according to Claim 1 wherein said composition further comprises a deterative surfactant selected from the group consisting of anionic, nonionic, amphoteric, zwitterionic, cationic and mixtures thereof.
17. The method according to Claim 16 wherein said anionic surfactant, is an anionic surfactant selected from the group consisting of C<sub>8</sub>-C<sub>18</sub> alkyl benzene sulfonates, C<sub>8</sub>-C<sub>18</sub> alkyl sulfates containing from 0 to 3 ethenoxy groups in the molecule, C<sub>8</sub>-C<sub>25</sub> olefin sulfonates, C<sub>10</sub>-C<sub>20</sub> paraffin sulfonates, C<sub>8</sub>-C<sub>9</sub> alkyl phenol ethoxamer sulfates, and mixtures thereof.
18. The method according to Claim 1 wherein said composition comprises a diamine, wherein said diamine has a molecular weight of less than or equal to about 400 g/mol.

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19. The method according to Claim 18 wherein said diamine is selected from the group consisting of dimethyl aminopropyl amine, 1,6-hexane diamine, 1,3 propane diamine, 2-methyl 1,5 pentane diamine, 1,3-Pentanediamine, 1,3-diaminobutane, 1,2-bis(2-aminoethoxy)ethane, Isophorone diamine, 1,3-bis(methylamine)-cyclohexane and mixtures thereof.
  20. The method according to Claim 18 wherein said composition further comprises an anionic surfactant, an amine oxide, an enzyme and mixtures thereof, wherein said enzyme is selected from the group consisting of amylase, protease and mixtures thereof.
  21. The method according to Claim 20 wherein said composition further comprises an effective amount of magnesium ions.
  22. The method according to Claim 1 wherein said composition is selected from the group consisting of granules, tablets, liquids, liqui-gels, gels, microemulsion, thixotropic liquid, bars, pastes, powders and mixtures thereof.
  23. The method according to Claim 1 wherein said composition is selected from the group consisting of, hand dishwashing compositions, hand laundry compositions, personal cleansing compositions, shampoos and mixtures thereof.
  24. The method according to Claim 1 wherein said method reduces irritation to skin caused by said detergent composition.
  25. A method for soaking hands during a manual dishwashing operation, with reduced skin irritation resulting therefrom, said method comprising:
    - 1) preparing an aqueous dishwashing solution from an effective amount for manual dishwashing of a liquid or gel dishwashing detergent composition comprising an effective amount of a suds boosting polymer in an amount sufficient to provide reduced skin irritation during manual dishwashing operations selected from the group consisting of:
      - (a) polymers comprising at least one monomeric unit of the formula:



wherein each of  $\text{R}^1$ ,  $\text{R}^2$ ,  $\text{R}^3$ , L, Z, z and A are as hereinbefore defined;  
and wherein said polymeric suds stabilizer has a molecular weight of  
from about 1,000 to about 2,000,000 daltons;

- (b) a proteinaceous suds stabilizer, said proteinaceous suds stabilizer having an isoelectric point of from about 9 to about 11.5;
  - (c) a zwitterionic polymeric suds stabilizer; and
  - (d) mixtures thereof.
- 2) immersing the hands of a practitioner in said dishwashing solution for a period of time which is effective to complete said manual dishwashing operation.
26. A method for soaking hands during a manual dishwashing operation, with reduced skin irritation resulting therefrom, said method comprising:
- 1) preparing an aqueous dishwashing solution from an effective amount for manual dishwashing of a liquid or gel dishwashing detergent composition comprising an effective amount of a suds boosting polymer in an amount sufficient to provide reduced skin irritation during manual dishwashing operations, said polymeric suds stabilizer comprising:
    - i) units capable of having a cationic charge at a pH of from about 4 to about 12;

provided that said suds stabilizer has an average cationic charge density of at least 0.01 units per 100 daltons molecular weight at a pH of from about 4 to about 12;
  - 2) immersing the hands of a practitioner in said dishwashing solution for a period of time which is effective to complete said manual dishwashing operation.

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REMARKS